Consolidated Water Use Efficiency 2002 PSP
Proposal - Part One

Part A - Project Information

1. Applying for: Prop 13 Urban Water Conservation Capital Outlay Grant
2. Principal Applicant: Inland Empire Utilities Agency
3. Project Title: Learning To Be WaterWise School Education Program
4. Person Authorized to Sign: Richard W. Atwater, CEO/General Manager
   P. O. Box 697
   Rancho Cucamonga, CA 91729
   909-357-0241
   atwater@ieua.org

5. Contact Person: David Hill, Manager of Water Resources
   Same
   dhill@ieua.org

6. Funds Requested: $10,000
7. Applicant Funds Pledged: $60,000
8. Total Project Costs: $70,000

9. Estimated total quantifiable project benefits (dollar amount): $82,959

10. Estimated annual amount of water to be saved: 48.12 acre-feet per year (AFY)
    Estimated total amount of water to be saved (AF): 192.48 AF (over four years)

11. Duration of Project (month/year to month/year): Jan. 2003 to June 2003

12. State Assembly Districts where the project is to be conducted: 61st and 63rd Districts

13. State Senate Districts where the project is to be conducted: 31st, 29th, and 32nd Districts

14. Congressional District(s) where the project is to be conducted: 41st and 42nd Districts

15. County where the project is to be conducted: San Bernardino County

16. Date most recent UWMP submitted to the DWR: December 2000

17. Type of Applicant: (e) Public Water District

18. Project Focus: (b) Urban

19. Project Type: (a) Implementation of Urban Best Management Practices

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use? (b) No

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Part B - Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and,

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.

_____	Richard W. Atwater, CEO/General Manager	February 28, 2002
Signature	Name and Title	Date

Consolidated Water Use Efficiency 2002 PSP
Proposal – Part Two

Project Summary

The Inland Empire Utilities Agency (IEUA) is a wholesale water district that distributes imported water, provides industrial/municipal wastewater collection and treatment services, recycled water, and other services to the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland, as well as the Cucamonga County Water District. The Agency serves a population of approximately 700,000 in a 242-square mile service area of southwest San Bernardino County.

IEUA is a signatory to the California Urban Water Conservation Council (CUWCC) memorandum of understanding (MOU) regarding urban water best management practices (BMP). IEUA is committed to implementing the fourteen BMP's identified in this conservation agreement. IEUA completed an Urban Water Management Plan (UWMP) in December 2000 that set a goal of saving 25,000 acre-feet (AF) of water per year by 2020.

The Problem

School education programs are an essential component of IEUA's regional conservation strategy. The need to get a water efficiency message to the school children is very important to establish a conservation ethic in the region. In 2001, IEUA, in collaboration with its member agencies and the Metropolitan Water District of Southern California, initiated a pilot school education program called Learning to Be WaterWise. Sponsored by the National Education Foundation, this program provides an opportunity to promote wise water use and to achieve quantifiable water savings for the region. The WaterWise program combines classroom activities with water conservation retrofit projects that students perform in their homes with their families. Sound educational curricula (that meets California State learning requirements) with exciting "hands-on" tools and incentives, such as gift certificates, that helps ensure successful teacher participation and implementation of the program.

The Solution

IEUA proposes to implement the Learning to Be WaterWise program in 2003 as a core element of the region's conservation activities. The program will be expanded, building upon the 2002 pilot project, to include up to 2,000 fifth grade students. Proposition 13 grant funding, if awarded, will be used to fund the purchase of the water conservation hardware (water saving showerheads and kitchen faucet and bathroom aerators) that students will install in their homes as part of the program. Through the implementation of the Learning to Be WaterWise Program, the Agency expects to save over 48 AF per year. The proposed program is locally cost effective and has a Benefit-Cost ratio of 1.10. The program also fulfills the requirements of BMP #1 – Water Survey Programs for Single Family Residential and Multi-Family Residential Customers, BMP #2 – Residential Plumbing Retrofits, BMP #7 – Public Information Campaigns, and, BMP #8 - School Education Programs.

PART A. Scope of Work: Relevance and Importance

1. Nature, Scope, and Objectives of the Project

The purpose of the proposed Learning to Be WaterWise program is to promote wise water use within IEUA's service area and to achieve measurable and lasting residential water and energy savings that result from the home installation of water efficient hardware by students and their parents. This combination yields tangible conservation results and a strong learning impact, effectively shaping new resource behavior and attitudes. The program also provides home water audit survey data that IEUA and its member agencies can use to design additional water conservation programs.

The goal of the proposed program is to build upon the successful 2002 pilot project, and offer the Learning to Be WaterWise curriculum to 2,000 fifth grade students within the Agency's service area. Hard conservation savings will result from the replacement of 2,000 showerheads and kitchen faucet and bathroom aerators. Students will also assess their household toilets, faucets and other indoor and outdoor water hardware for leaks. Additional conservation will be achieved through dissemination of information on regional Ultra-Low-Flow Toilet distribution programs, clothes washer rebates, landscaping and ways to improve residential conservation. Through the curriculum content and the home installations, students and their families will effectively gain knowledge and skills for resource awareness and conservation, while generating tangible energy, water and wastewater savings from simple changes in their everyday habits.

IEUA expects to save over 48 AF per year as a result of this program, offsetting the need for an equivalent amount of imported State Water Project supplies. The Learning to Be WaterWise program is locally cost effective and has a benefit-cost ratio of 1.10. The program also fulfills the requirements of BMP #1 – Water Survey Programs for Single Family Residential and Multi-Family Residential Customers, BMP #2 – Residential Plumbing Retrofits, BMP #7 – Public Information Campaigns and BMP #8 - School Education Programs.

2. Statement of Critical Issues and Explanation of Need for the Project

IEUA's service area in the Chino Basin is one of the fastest growing watersheds within California. The current population of approximately 700,000 people is expected to double within the next twenty years. As a result of this growth, the need for reliable potable water supplies will also dramatically increase.

Water usage within the Chino Basin is about 300,000 AF of water per year, of which 50,000 AF comes from the State Water Project (because of water quality constraints within the groundwater basin, the region cannot accept Colorado River water). Without local conservation, recycling and groundwater conjunctive use programs, the region's need for additional imported water from the State Water Project is expected to climb to 100,000 AF – 125,000 AF per year and will place additional pressure on the San Francisco Bay Delta system.

IEUA is committed to implementing local projects that will reduce the region's dependence on imported State Water Project supplies. IEUA's service area is located within the "Solution Area" identified in CALFED's Record of Decision (ROD). The Agency is committed to helping CALFED achieve the commitments of the ROD.

In December 2000, the Agency completed an Urban Water Management Plan that sets the goal of eliminating the need for imported water supplies for up to three years during droughts. Conservation is a critical element in this regional strategy. The Agency's objective is to achieve 25,000 AF of water savings annually within the next twenty years. The water conservation program is consistent with the Chino Basin Peace Agreement and the Optimum Basin Management Plan. In addition, the program meets IEUA's commitment to the California Urban Water Conservation Council Memorandum of Understanding.

The proposed Learning to Be WaterWise Program is expected to produce up to 48 AF of water savings per year and over 192 AF over the four-year life of the equipment. These savings will directly benefit CALFED and the San Francisco Bay Delta because they offset water that would otherwise need to be imported from northern California.

PART B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring and Assessment

1. Methods, Procedures, and Facilities

The Learning to Be WaterWise program has been designed to address state and national learning standards for fifth and sixth grade students. The program has been certified by the California Urban Water Conservation Council as complying with four of the fourteen best management practices, including BMP #1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers and BMP #2 – Residential Plumbing Retrofits, and BMP #7 – Public Information Campaigns and BMP #8 - School Education Programs.

To implement the program, IEUA will contract with the National Education Foundation (NEF). Member agencies within the region will work with NEF to identify participating schools and to provide supplemental education services. NEF will handle all the elements of the program's implementation including teacher enrollment, provision of curriculum and water conservation hardware, home audit survey kits, data collection and final reporting.

Quantifiable conservation savings are achieved through the home survey and conservation hardware installation portion of the program.

2. Task List and Schedule

Below is a list of the expected tasks of the program.

Date	Task	Budget Item	Amount
Oct '02	Execute Agreement between IEUA and DWR	IEUA	$0
Oct/Nov '02	Execute Agreement between IEUA and NEF	IEUA	$0
Dec'02/Feb'03	NEF to identify participating schools and teachers	NEF	$0
Feb '03	Purchase of hardware for kits	IEUA	$10,000
Mar '03	Mail out kits to teachers	NEF	$60,000
Apr '03	NEF receives back completed forms and Compiles	NEF	$0
May '03	IEUA returns to schools with results and awards	IEUA	$0
Jun '03	NEF and IEUA Compiles Final Report for DWR	NEF and IEUA	$0

3. Monitoring and Assessment

The WaterWise program contains several evaluation elements within its design. One key feature is a pre- and post-program test, where students take the identical test before and after the program to objectively measure knowledge gained form the program. Another tool is the Household Report Card that provides a summary of the positive actions students have implement in their own homes as a part of the program. These report cards are shared with parents and teachers, and help to measure progress, savings, and impact of the Learning to Be WaterWise program.

Data from the home surveys are collected by NEF and summarized to show water savings. The data will be analyzed for the overall program and provides break outs by single-family and multi-family residences. Actual savings results are verified by the return of the old showerheads to the classroom. This ensures that the savings calculations are statistically valid. The report cards, teacher evaluation forms, and activity progress charts will be used to verify the number of student participating in the program.

The data obtained from the surveys will assist IEUA and its member agencies in determining conservation saturation levels for the service area. The data will also be used to target future programs such as ULF toilet distributions and landscape programs. IEUA will include the data in preparation of California Urban Water Conservation Council bi-annual reports and Urban Water Management Plan Updates.

4. Preliminary Plans and Specifications (Not required for this grant application)

Part C. Qualifications of the Applicants and Cooperators

1. Project Managers

Inland Empire Utilities Agency – Kathy Tiegs, Conservation Coordinator
Eight years of conservation program implementation experience and 27 years with IEUA in the capacity of project manager (see attached resume).

National Energy Foundation – David Munk
Five years experience managing and implementing the Living Wise program.

2. External Cooperators

The National Energy Foundation, a 501(C) 3 non-profit educational organization, was formed in 1978 to develop and distribute instructional materials relating to water, energy, and other resource education topics. The first version of the Learning To Be WaterWise program was introduced in 1992, following extensive market research and material development. The program has been extremely popular. Over 300,000 students have participated since the program's inception.

NEF will provide turn-key services in implementing the program. The Foundation will contact the teachers, obtain teacher commitments to participate, provide the curriculum materials, be available to the teachers to answer questions (through an "800" number), collect data and provide the final data summary reports.

Part D. Benefits and Costs

1. Budget Breakdown and Justification

The estimated cost per unit is $35.00, with at total estimated costs of $70,000. Cost sharing requested from Proposition 13 Funding is $10,000. A 10% contingency has been included to pay for broken or lost replacement parts for each kit. Note that Proposition 13 funding will pay for the hardware portion of the program only. The remaining budget items will be paid for by IEUA and/or our member agencies. Installation of the hardware purchased through this grant is expected to yield the conservation savings estimated for this program.

Items	**Costs**
Low Flow Showerhead	$2.25 per unit
Kitchen Flip Aerator	$1.50 per unit
Bathroom Aerators (2 per kit)	$0.40 per unit
10% Contingency	$0.45 per unit
Total Cost of Hardware	**$5.00 per unit**

Water savings are expected to be 48.12 AF per year (AFY) or 192.48 AF over the four-year life of the equipment (consistent with A & N Technical Services report dated 2000).

Assumptions are as follows:

?? BMP #1

- SF water usage is 167 gallons per day (gpd) for outdoor water use.
- MF water usage is 90 gpd/unit
- Water savings from indoor leak detection, not including toilet leaks is 1.2 gpd per residence.
- Water surveys will decrease outdoor water use by 10% 16.7 gpd/SF and 9 gpd/MF unit.
- Outdoor water savings is 18.58 gpd, or 6,782 gallons per year.
- The life span of the outdoor water survey is four years.

?? BMP #2
- There are an average of 1.3 showers and 3.6 faucets per residence.
- Water savings from one low-flow showerhead is 2.9 gpd.
- Water savings from one faucet aerator 0.6 gpd.
- Water savings from on kitchen "flip" aerator is 1.4 gpd.
- Indoor water savings is 5.48 gpd or 2000 gpy.
- The life span of the indoor water survey is four years.

This program reduces both indoor and outdoor water use. The curriculum materials and household survey includes measurement and recommendations for indoor water use and for outdoor irrigation.

Additional benefits from this program include reduced demand on wastewater treatment facilities (water and energy savings). Outdoor water savings help to reduce poor quality runoff to storm drains, rivers and the ocean. The program supports the region's implementation of the Chino Basin Optimum Basin Management Program and the 2000 Peace Agreement.

Items	**Costs**	**Justification**
Land Purchase/Easement	$0	
Planning/Design/Engineering	$0	
Materials/Installation	$10,000	Purchase of hardware for each kit
Structures	$0	
Equipment Purchases/Rentals	$0	
Environmental Mitigation/Enhancement	$0	
Construction/Administration	$60,000	Purchase of kits and implementation
Project/Legal/License Fees	$0	
Contingency	$0	
Total	$70,000	

2. Cost Sharing

IEUA will provide a majority of the program funding ($60,000). The State of California is being asked to provide funding ($10,000) for the cost of the water conserving hardware included in each student kit. Each kit includes a low-flow showerhead, kitchen faucet aerator, and bathroom aerators.

3. Benefit Summary and Breakdown

Estimated Water Savings For Total Project	**Results**
Water Savings for 1,000 Kits	48.12 Acre-Feet (AF)
Total Savings (Annual savings multiplied by the 4 year life of the project)	192.48 AF
Project Costs	$70,000
Cost per AF @$70,000	$363
Cost per AF Local Share $60,000	$312
Cost per AF DWR/Prop 13 Funding @ $10,000	$52

Estimating the Value Per Kit to the End User	HCF	Annual Savings
Value to Customer @$1.25 per HCF (retail water only)	11.74	$14.68
Value to Customer @$1.75 per HCF (water and sewer)	11.74	$20.55

Estimating the Value Per Unit Installed to IEUA	Results
Marginal Cost of Water (Imported)	$431
Value to IEUA (Annual Savings)	$20,740
Value to IEUA (Project Savings)	$82,958
Present Value of Saved Water	$65,710 (Discounted 6% for 4 years)
Local Investment	$60,000

Net Present Value Method
NPV = Discounted Benefits – Costs
$65,710 - $60,000 = $5,710

Benefit Cost Ratio Method
BCR = Sum of Discounted Benefits/Sum of Costs
$65,710/$60,000 = 1.10

Simple Pay Back Analysis
Savings per Year = $20,740
IEUA @$431/AF x 48.12 AFY = $20,740
$60,000/$20,740 = 2.94 years

Part E. Outreach, Community Involvement and Acceptance

As a wholesale water agency, IEUA has developed its conservation program in collaboration with the seven member agencies that serve as the water retailers for the service area. The conservation program is strongly supported by these cities and agencies. The program is also strongly supported by the Chino Basin Watermaster and Chino Basin Water Conservation District. The region is committed to achieving the 25,000 acre-foot conservation goal set by the Urban Water Management Plan.

The proposed Learning to Be WaterWise program has been developed with the full involvement of IEUA's member agencies. They have agreed to help promote the program and to provide staff support as necessary. Outreach efforts will include a press conference, tree-planting events at participating schools, articles in member agency newsletters and publications, local cable television spots and publicity through local papers. Program advertising will feature two messages: the value of conserving water within the Chino Basin and the importance of contributing to the protection of the San Francisco Bay Delta by reducing regional demand for imported State Water Project water.

Conclusion
School education programs are an essential component of IEUA's regional conservation strategy. The Learning To Be WaterWise Program offers an opportunity to establish a

conservation ethic with the school children of the IEUA's service area. The water conservation savings are substantial at 192.48 AF for indoor and outdoor water savings over a four-year period (which is the projected life of the project) with a benefit-cost ratio of 1.10. By providing the funding necessary to cover the capital costs of the purchase and installation of household water conservation devices, the State of California (through the Department of Water Resources) is significantly adding to the water solution for California.

Attachment

RESUME

Kathleen J. Tiegs
Inland Empire Utilities Agency
P. O. Box 697
Rancho Cucamonga, CA 91729-0697
ktiegs@ieua.org

Professional Experience

Inland Empire Utilities Agency — November 1974 to Present
Fontana, CA

Title: Water Resources Analyst

Duties:

- Water conservation program design and development, including customer market research, program policy and guideline development, consensus building and program implementation.
- Manages and coordinates water conservation programs.
- Provide administrative support to Executive Management.
- Serves as liaison to seven contracting member agencies.
- Resolves consumer disputes regarding water conservation programs.
- Solicit programs for consultants, handling contract negotiations and consultant oversight and management.
- Administers and coordinates water service programs offered by the Metropolitan Water District of Southern California with seven contracting agencies.
- Serves as Chairperson of the Water Education Awareness Committee.